

DETAILED ACTION

Citation to the Specification will be in the following format (S. # : ¶) where # denotes the page number and ¶ denotes the paragraph number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

Information Disclosure Statement

The Examiner has considered the relevance of all foreign patent documents insofar as the translated abstracts or search reports indicate. "The duty of candor does not require that the applicant translate every foreign reference, but only that the applicant refrain from submitting partial translations and concise explanations that it knows will misdirect the examiner's attention from the reference's relevant teaching." *Semiconductor Energy Laboratory Co. v. Samsung Electronics Co.*, 204 F.3d 1368, 1378, 54 USPQ2d 1001 1008 (Fed. Cir. 2000).

This Examiner would consider any documents cited against this or related applications in foreign patent offices material to patentability, and requests they be submitted. Appropriate translations are expected.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "hot" in claim 24-26 is a relative term which renders the claim indefinite. The term "hot" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. All other claims, by nature of their status as dependent claims, import the defects of the independent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The entire reference teaches each and every limitation of the rejected claims. The pinpoint citations provided are in no way to be construed as limitations of the teachings of the reference, but rather illustrative of particular instances where the teachings may be found.

With respect to any and all rejections made under principles of inherency, the Examiner recognizes "[t]he express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103." MPEP 2112. Further, the Examiner is well aware of his burden to provide rationale or evidence tending to show inherency. *Id* at "IV." Applicants need not remind the Examiner of this in their response.

Once the Examiner has provided the rational or evidence, “the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Applicants have claimed activated carbon products. See Claims 1, 4, 11, 26 and 31 (and claims depending therefrom). The product claims generally recite some alkali metal concentration or “heavy metal” (Ni, Cu, Zn and Fe) concentration. According to Applicants these heavy metals are present in the activated carbon as a result of the activation treatment. See (S. 4: 1-10) (describing the corrosion of the heating furnace leading to “admixing” of heavy metals with the activated carbon). Similarly, according to Applicants, the alkali metals are present in the activated carbon as a result of the activation treatment. (S. 4: 20-23) (“Furthermore, there may be cases in which alkali metals originating in the alkali metal hydroxides used as activation reagents remain in the activated carbon.”). Therefore, it naturally follows that activated carbon that is “activated” by methods that do not employ alkali hydroxides (or any reagent with alkali metals) would not have an alkali metal content to report. Likewise, an activated carbon that was *not* treated by an alkali hydroxide and exposed to corrosive furnace conditions could be expected to be free of any “heavy metals.”

This discussion is the “rationale tending to show inherency.” It is made once for brevity’s sake. To the extent it is necessary to support a rejection *infra*, the discussion is expressly incorporated therein in its entirety. Additional remarks are made as necessary in the bodies of the rejections *infra*. As drafted, the product claims are unremarkable, as (as the rejections will show) you can make activated carbon *without* the conditions that give rise to the metals Applicants are trying to remove. Finally - given the Examiner’s efforts to explain himself - Applicants should be apprised that responses with boilerplate statements to the effect that “[i]nherency . . . may not be established by probabilities or possibilities” and nothing more will be met with a boilerplate final rejection.

Claims 1-2 and 4-9 rejected under 35 U.S.C. 102(b) as being anticipated by Rodriguez-Reinoso, et al., *The Use of Steam and CO₂ as Activating Agents in the Preparation of Activated Carbons*, Carbon 1995: 33(1): 15-23 (hereinafter “Rodriguez at ___”).

With respect to all rejected claims, Rodriguez recites activated carbons prepared from olive stones with a “physical activation” method (i.e. steam and CO₂). *See e.g.* (Rodriguez at 15 *et seq.*) (“2. Experimental”). It is expected that the activated carbon of Rodriguez necessarily has the metal contents claimed, as the activation treatments that give rise to the presence of these metals is not taught (i.e. there is *no* alkali treatment followed by carbonation). Further, olive pits are not expected to contain levels of metals claimed, and certainly not after carbonation at 850°C in a nitrogen atmosphere for two hours. *Id.* See above with respect to inherency and burden shifting.

Claims 1-2, 4-9 and 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura, et al., *Influence of physical properties of activated carbons on characteristics of electric double-layer capacitors*, J. Pwr. Sources 1996; 60: 225-231 (hereinafter “Nakamura at ___”).

With respect to Claims 1-2 and 4-9, Nakamura recites *both* physical and chemical activation of several carbonaceous precursors. *See* (Nakamura at 226, “Table 1”). It is expected that any of the activated carbons produced by the physical (i.e. “steam”) activation methods would necessarily have the metal contents claimed. *See* above discussion of inherency. As to Claims 31-32, Nakamura recites an electrode comprising activated carbon, a binder, and a conductive material. *See* (Nakamura at 227, Col. 1). Said electrode was incorporated into a double-layer capacitor. *Id.*

Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,883,400 to Armstrong, et al.

With respect to Claim 3, Armstrong recites an activation treatment (Armstrong 4: 30-56) followed by a carbonic acid wash. (Armstrong 4: 66-67).

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by US 6,258,337 B1 to Sonobe, et al.

With respect to Claim 10, Sonobe recites an activation treatment. *See e.g.* (Sonobe 7: 22) (“steam activation treatment”). The activated carbon is treated with NaOH (i.e. a “basic substance”). (Sonobe 5: 58 - 6: 14).

Claim 10 rejected under 35 U.S.C. 102(a) as being anticipated by US 2002/0096661 A1 to Shinozaki, et al.

With respect to Claim 10, Shinozaki recites an activation treatment. (Shinozaki 1: [0008]-[0009]). The activated carbon is then treated with KOH (i.e. a “basic substance”). *Id.*

Claims 11-22, 24, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,064,805 to Otowa, et al.

With respect to Claims 11-19, Otowa recites an activated carbon subject to an alkali activation treatment. *See e.g.* (Otowa 4: 15-35). Otowa further recites water washing and treatment with HCl. (Otowa 4: 66 *et seq.*). This is exactly the treatment employed by Applicants in any number of the “inventions” disclosed in the specification. *See e.g.* (S. 15: 2-5) (“*it is preferable* that a hydrochloric acid washing treatment be performed to remove heavy metals (e.g., nickel, copper, zinc or the like) contained in very small amounts in the activated carbon.”) (emphasis added). This is the evidence tending to show inherency, i.e. the activated carbon of Otowa is expected to have the metal content and other properties claimed. It is further noted that Applicants have stated on and for the record that it is not especially critical what concentrations of HCl are used. (S. 15: 6-8) (“There are no particular restrictions on the concentration of the hydrochloric acid used in the hydrochloric acid washing treatment.”). However, it would appear as of Otowa recites the concentrations disclosed. See above with respect to inherency burden shifting.

With respect to Claim 20 and 22 as noted above, an alkali treatment is recited. The HCl taught by Otowa is one of the "aqueous solutions containing oxidizing agents" recited by Applicants at (S. 38: 20 *et seq.*). As to Claim 21 and 27, KOH taught. (Otowa 4: 15 *et seq.*). As to Claim 24, to the extent this claim repeats limitations discussed above, the preceding discussion is relied upon. It is noted that the activated carbon is rinsed after the HCl treatment. (Otowa 4: 67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

As to the rejection under 35 U.S.C. §§ 102/103, where the applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the Examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. *See* MPEP 2112 III. (discussing 102/103 rejections).

With respect to the third *Graham v. Deere* inquiry, resolving level of ordinary skill in the art, the Examiner resolves the level of skill in the art to be high, presumably a PhD chemist or chemical engineer with extensive experience in the activated carbon field. One of ordinary skill in the art would presumably be very familiar with various physical and chemical activation treatments. The references of record, including those submitted by Applicants on their IDS are taken in support of this finding. This finding is made once for brevity's sake.

Claims 1-2 and 4-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rodriguez-Reinoso, et al., *The Use of Steam and CO₂ as Activating Agents in the Preparation of Activated Carbons*, Carbon 1995: 33(1): 15-23.

The discussion of Rodriguez accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. See above with respect to 102/103 rejections.

Claims 1-2, 4-9 and 31-32 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakamura, et al., *Influence of physical properties of activated carbons on characteristics of electric double-layer capacitors*, J. Pwr. Sources 1996; 60: 225-231.

The discussion of Nakamura accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. See above with respect to 102/103 rejections.

Claims 11-22, 24, and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,064,805 to Otowa, et al.

The discussion of Otowa accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. See above with respect to 102/103 rejections.

Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,064,805 to Otowa, et al as applied to claim 20 above, and further in view of US 6,225,256 to Shawabkeh, et al.

The discussion of Otowa accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. To the extent Otowa may not disclose the use of hydrogen peroxide as an oxidizing agent, one of ordinary skill in the art would recognize it as an obvious expedient, as its "oxidizing properties" are well described in the art. *See e.g.* (Swahabkeh 5: 2).

Claims 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,225,256 to Shawabkeh, et al.

With respect to all claims., Shawabkeh recites a host of chemical activating agents – both acidic and basic. *See*(Swahabkeh 3: 40 *et seq.*). Water washing and heating are all recited. *Id.* Different schemes of acid/base and washing treatments – as well as their effects on residual ions – are recited at col. 5-6. Optimization of the order of these steps, temperatures, concentrations, etc. does not impart patentability. *In re Boesch*, 205 USPQ 215, 219 (CCPA 1980).

Conclusion

All amendments made in response to this Office Action must be accompanied by a pinpoint citation to the Specification (i.e. page and paragraph or line number) to indicate where Applicants are drawing their support.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL C. MCCracken whose telephone number is (571)272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stuart Hendrickson/

Daniel C. McCracken
Assistant Examiner
DCM

Stuart L. Hendrickson
Primary Examiner